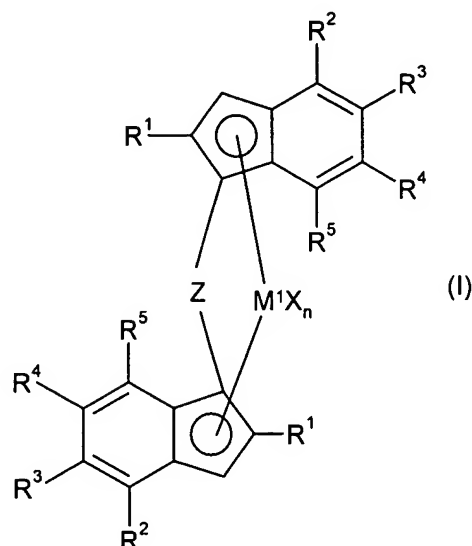


AMENDMENTS TO THE CLAIMS

1. (Currently amended) An organometallic transition metal compound of the formula (I)



where

M^1 is an element of group 3, 4, 5 or 6 of the Periodic Table of the Elements or the lanthanides,

X are identical or different and are each halogen, hydrogen, C_1 - C_{20} -alkyl, C_2 - C_{20} -alkenyl, C_6 - C_{22} -aryl, alkylaryl or arylalkyl each having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part, $-OR^6$ or $-NR^6R^7$, where two radicals X may also be joined to one another,

n is a natural number from 1 to 4 which corresponds to the oxidation number of M^1 minus 2,

R^1 is hydrogen or ~~a C_1 - C_{40} radical~~, a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part or a C_4 - C_{24} heteroaromatic radical selected from the group consisting of substituted or unsubstituted thienyl radicals

or of substituted or unsubstituted furyl radicals,

R^2 is a substituted or unsubstituted C_6 - C_{40} -aryl radical ~~or C_2 - C_{40} -heteroaromatic radical containing at least one heteroatom selected from the group consisting of O, N, S and P,~~

R^3 is hydrogen ~~or a C_1 - C_{40} -radical,~~ or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

or the radicals R^2 and R^3 together form a ring system,

R^4 is hydrogen ~~or a C_1 - C_{40} -radical,~~ or a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

R^5 ~~is a C_1 - C_{40} -radical,~~ is a cyclic, branched or unbranched C_1 - C_{20} -alkyl radical, a C_2 - C_{20} -alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

and

Z is a divalent group $CR^8R^9-CR^{10}R^{11}$, where R^8 , R^9 , R^{10} and R^{11} are identical or different and are each hydrogen or a ~~C_1 - C_{40} -radical,~~ a trimethylsilyl group, a C_1 - C_{10} -alkyl group, a C_1 - C_{10} -fluoroalkyl group, a C_6 - C_{10} -fluoroaryl group, a C_6 - C_{10} -aryl group, a C_8 - C_{40} -arylalkenyl group, a C_7 - C_{40} -arylalkyl group or a C_7 - C_{40} -alkylaryl group or two adjacent radicals together with the atoms connecting them may form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

2. (Original) An organometallic transition metal compound of the formula (I) as claimed in claim 1,

where

M^1 is an element of group 4 of the Periodic Table of the Elements,

n is 2,

R^1 is C_1 - C_{10} -alkyl,

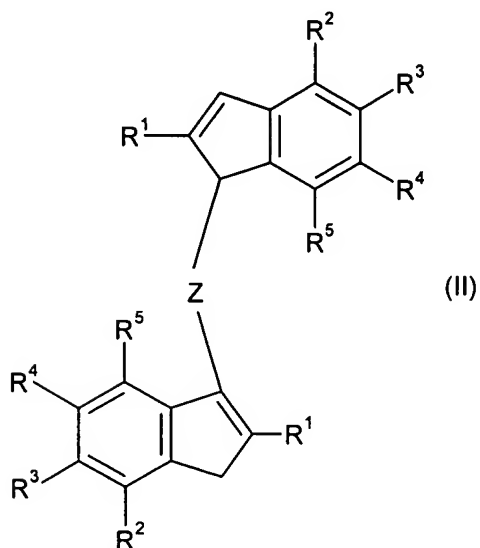
R^3 is hydrogen or a C_1 - C_{10} -alkyl radical,

R^4 is hydrogen or a C_1 - C_{10} -alkyl radical,

R^5 is a C_1 - C_{10} -alkyl radical and

Z is CH_2-CH_2 .

3. (Currently amended) A biscyclopentadienyl ligand system of the formula (II)



or its double bond isomers,

where the variables R^1 , R^2 , R^3 , R^4 , R^5 and Z are as defined in formula (I)

R^1 is hydrogen or a C_1 - C_{40} radical,

R^2 is a substituted or unsubstituted C_6 - C_{40} -aryl radical or C_2 - C_{40} -heteroaromatic radical containing at least one heteroatom selected from the group consisting of O, N, S and P,

R³ is hydrogen or a C₁-C₄₀ radical, or the radicals R² and R³ together form a ring system,

R⁴ is hydrogen or a C₁-C₄₀ radical,

R⁵ is a C₁-C₄₀ radical, and

Z is a divalent group CR⁸R⁹-CR¹⁰R¹¹, where R⁸, R⁹, R¹⁰ and R¹¹ are identical or different and are each hydrogen or a C₁-C₄₀ radical or two adjacent radicals together with the atoms connecting them may form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

4. (Original) A biscyclopentadienyl ligand system of the formula (II) as claimed in claim 3, where
R¹ is C₁-C₁₀-alkyl,
R³ is hydrogen or a C₁-C₁₀-alkyl radical,
R⁴ is hydrogen or a C₁-C₁₀-alkyl radical,
R⁵ is a C₁-C₁₀-alkyl radical and
Z is CH₂-CH₂.
5. (Currently amended) A catalyst system for the polymerization of olefins comprising at least one organometallic transition metal compound as claimed in claim 1 ~~claim 1 or 2~~ and at least one cocatalyst as cation-forming compound.
6. (Original) A catalyst system as claimed in claim 5 which further comprises a support.
7. (Currently amended) A process for preparing polyolefins by polymerization or copolymerization of at least one olefin in the presence of a catalyst system as claimed in claim 5 ~~claim 5 or 6~~.

8. cancelled

9. (Currently amended) A process for preparing an organometallic transition metal compound, which comprises reacting a biscyclopentadienyl ligand system as claimed in claim 3 ~~claim 3~~ or 4 or a bisanion prepared therefrom with a transition metal compound.

10. (New) A biscyclopentadienyl ligand system as claimed in claim 3, wherein

R¹ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part or a C₄-C₂₄ heteroaromatic radical selected from the group consisting of substituted or unsubstituted thienyl radicals or of substituted or unsubstituted furyl radicals,

R² is a substituted or unsubstituted C₆-C₄₀-aryl radical,

R³ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

or the radicals R² and R³ together form a ring system,

R⁴ is hydrogen or a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

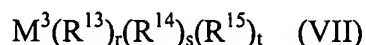
R⁵ is a cyclic, branched or unbranched C₁-C₂₀-alkyl radical, a C₂-C₂₀-alkenyl radical, an arylalkyl radical having from 1 to 10 carbon atoms in the alkyl part and from 6 to 22 carbon atoms in the aryl part,

and

Z is a divalent group CR⁸R⁹-CR¹⁰R¹¹, where R⁸, R⁹, R¹⁰ and R¹¹ are identical or different and are each hydrogen or a trimethylsilyl group, a C₁-C₁₀-alkyl group, a C₁-C₁₀-fluoroalkyl group, a C₆-C₁₀-fluoroaryl group, a C₆-C₁₀-aryl group, a C₈-C₄₀-arylalkenyl group, a C₇-C₄₀-arylalkyl group or a C₇-C₄₀-alkylaryl group or two adjacent radicals

together with the atoms connecting them form a saturated or unsaturated ring having from 4 to 15 carbon atoms.

11. (New) A catalyst system as claimed in claim 5 further comprise a metal compound of the formula (VII)



wherein

M^3 is an alkali metal, an alkaline earth metal or a metal of group 13 of the Periodic Table,

R^{13} is hydrogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, alkylaryl or arylalkyl each having from 1 to 10 carbon atoms in the alkyl part and from 6 to 20 carbon atoms in the aryl part,

R^{14} and R^{15} are identical or different and are each hydrogen, halogen, C_1 - C_{10} -alkyl, C_6 - C_{15} -aryl, alkylaryl, arylalkyl or alkoxy each having from 1 to 10 carbon atoms in the alkyl radical and from 6 to 20 carbon atoms in the aryl radical,

r is an integer from 1 to 3,

and

s and t are integers from 0 to 2, where the sum $r+s+t$ corresponds to the valence of M^3 .

12. (New) A catalyst system as claimed in claim 11 wherein M^3 is boron, aluminum, gallium, indium or thallium.